

P ENT COOPERATION TREA

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NOTIFICATION OF ELECTION

(PCT Rule 61.2)

From the INTERNATIONAL BUREAU

To:

Assistant Commissioner for Patents
United States Patent and Trademark
Office
Box PCT
Washington, D.C. 20231
ÉTATS-UNIS D'AMÉRIQUE

in its capacity as elected Office

Date of mailing (day/month/year) 27 August 1999 (27.08.99)	
International application No. PCT/IB99/00065	Applicant's or agent's file reference P018547WO
International filing date (day/month/year) 06 January 1999 (06.01.99)	Priority date (day/month/year) 08 January 1998 (08.01.98)
Applicant CARMELLO, Diego et al	

1. The designated Office is hereby notified of its election made:



in the demand filed with the International Preliminary Examining Authority on:

23 June 1999 (23.06.99)



in a notice effecting later election filed with the International Bureau on:

2. The election ☒ was

was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland	Authorized officer Lazar Joseph Panakal
Facsimile No.: (41-22) 740.14.35	Telephone No.: (41-22) 338.83.38

from the
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

To:

VOTIER, Sidney David
CARPMAELS & RANSFORD
43 Bloomsbury Square
London WC1A 2RA
GRANDE BRETAGNE

PCT
CARPMAELS & RANSFORD
ACTIONED

NOTIFICATION OF TRANSMITTAL OF
THE INTERNATIONAL PRELIMINARY
EXAMINATION REPORT
(PCT Rule 71.1)

Date of mailing
(day/month/year)

01.02.00

Applicant's or agent's file reference
P018547WO

IMPORTANT NOTIFICATION

International application No.
PCT/IB99/00065

International filing date (day/month/year)
06/01/1999

Priority date (day/month/year)
08/01/1998

Applicant
EVC TECHNOLOGY AG et al.

1. The applicant is hereby notified that this International Preliminary Examining Authority transmits herewith the international preliminary examination report and its annexes, if any, established on the international application.
2. A copy of the report and its annexes, if any, is being transmitted to the International Bureau for communication to all the elected Offices.
3. Where required by any of the elected Offices, the International Bureau will prepare an English translation of the report (but not of any annexes) and will transmit such translation to those Offices.

4. REMINDER

The applicant must enter the national phase before each elected Office by performing certain acts (filing translations and paying national fees) within 30 months from the priority date (or later in some Offices) (Article 39(1)) (see also the reminder sent by the International Bureau with Form PCT/IB/301).

Where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary examination report. It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned.

For further details on the applicable time limits and requirements of the elected Offices, see Volume II of the PCT Applicant's Guide.

Name and mailing address of the IPEA/



European Patent Office
D-80298 Munich
Tel. +49 89 2399 - 0 Tx: 523656 epmu d
Fax: +49 89 2399 - 4465

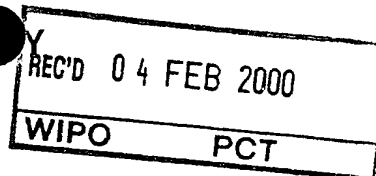
Authorized officer

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PCT



INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference P018547WO	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/IB99/00065	International filing date (day/month/year) 06/01/1999	Priority date (day/month/year) 08/01/1998
International Patent Classification (IPC) or national classification and IPC B01J23/78		
Applicant EVC TECHNOLOGY AG et al.		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.



2. This REPORT consists of a total of 5 sheets, including this cover sheet.

- ☒ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 1 sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☒ Certain defects in the international application
- VIII ☐ Certain observations on the international application

Date of submission of the demand 23/06/1999	Date of completion of this report 01.02.00
Name and mailing address of the international preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized officer Mauger, J Telephone No. +49 89 2399 8447 

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/IB99/00065

I. Basis of the report

1. This report has been drawn on the basis of (*substitute sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to the report since they do not contain amendments.*):

Description, pages:

1-12 as originally filed

Claims, No.:

1-9 as received on 28/12/1999 with letter of 23/12/1999

2. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
☐ the claims, Nos.:
☐ the drawings, sheets:

3. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

4. Additional observations, if necessary:

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes:	Claims 4-8
	No:	Claims 1-3,9
Inventive step (IS)	Yes:	Claims
	No:	Claims 1-9
Industrial applicability (IA)	Yes:	Claims 1-9
	No:	Claims

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. PCT/IB99/00065

2. Citations and explanations

see separate sheet

VII. Certain defects in the international application

The following defects in the form or contents of the international application have been noted:

see separate sheet

Re Item V

Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

- 1) Reference is made to the following document:

D1...GB-A-971 966

- 2) Document D1, which is considered to represent the closest prior art, discloses processes and catalysts for the synthesis of in particular 1,2-dichloroethane. The catalysts used comprised an alkaline earth metal and copper. The catalysts were prepared by a process which involved the impregnation of alumina with a solution(s) containing the copper and the alkaline earth metal (typically as chlorides; cf claims 1,5 and 12 and page 2, lines 3-7)). The initial alumina employed was activated alumina (gamma-alumina) which was heat treated (at 800 to 1400°C) prior to the impregnation with copper. In claims 2 and 3 of D1 it is specified that the alkaline earth metal is preferably magnesium and that the impregnation of the alumina with the alkaline earth metal may be performed before the heat treatment of the alumina. The catalyst produced in the example contained 1.1% magnesium, 4% copper and 4% cerium.

In a catalyst preparation according to D1 in which the alumina is impregnated with magnesium prior to the heat treatment, the heat treatment will have to be followed by the copper impregnation. The heat treatment in D1 since it is performed at high temperatures appears to serve the primary purpose of converting the initial gamma-alumina to an alumina which contains a significant proportion of alpha-alumina. This heat treatment will however clearly also dry the magnesium impregnated alumina. This is all that is required in present claim 1. There is no requirement derivable from claim 1 that the alumina must be subject to a low temperature drying or remain as gamma-alumina.

Thus this type of process as disclosed in D1 is novelty destroying for the catalyst preparation process of present claims 1 and 2, the catalyst produced by this process as defined in claim 3 and the gas phase oxychlorination as defined in claim 9 (Article 33(2) PCT).

- 3) The remaining claims 4-8 are not considered to involve an inventive step (Article 33(3) PCT). These claims either define well known compositions for oxychlorination catalysts or forms of gamma-alumina which a skilled person would readily recognise as being suitable starting materials for the process of document D1.

Re Item VII

Certain defects in the international application

- 1) Contrary to the requirements of Rule 5.1(a)(ii) PCT, the relevant background art disclosed in the document D1 is not mentioned in the description, nor is this document identified therein.
- 2) The description is not in conformity with the claims as required by Rule 5.1(a)(iii) PCT.

1 28 12 99
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CLAIMS

1. A process for preparing a catalyst which comprises impregnating
5 γ -alumina with a solution containing a magnesium salt, drying the
product, and impregnating the product with a solution containing a copper
salt and, optionally, a lithium salt.
2. A process as claimed in claim 1 wherein the salts are the chloride
10 salts.
3. A catalyst produced by the process of claim 1 or 2.
4. A catalyst as claimed in claim 3 containing, by weight,
15 from 0.1 to 5% magnesium, from 2 to 10% copper, and from 0 to 5% lithium.
5. A catalyst as claimed in claim 4 containing, by weight,
from 0.1 to 2% magnesium, from 2 to 8% copper, and from 0 to 1% lithium.
- 20 6. A catalyst as claimed in claim 5 containing, by weight, 0.5
to 1.5% magnesium, from 3 to 6% copper, and from 0.1 to 0.3% lithium.
7. A catalyst as claimed in any of claims 3 to 6 wherein the γ -alumina
has a surface area of from 50 to 220 m²/g and an average particle size in
25 the range 40 to 60 μ m.
8. A catalyst as claimed in claim 7 wherein the γ -alumina has a
surface area of from 80 to 180m²/g.
- 30 9. A process for the catalytic gas phase oxychlorination of ethylene
which comprises reacting ethylene, hydrogen chloride and a source of
oxygen in the presence of a catalyst as claimed in any of claims 3 to 8.



INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification ⁶ : B01J 23/78, 37/02, C07C 17/156	A1	(11) International Publication Number: WO 99/34918 (43) International Publication Date: 15 July 1999 (15.07.99)
(21) International Application Number: PCT/IB99/00065 (22) International Filing Date: 6 January 1999 (06.01.99) (30) Priority Data: 98300097.7 8 January 1998 (08.01.98) EP (71) Applicant (for all designated States except US): EVC TECHNOLOGY AG [CH/CH]; Baarerstrasse 2, CH-6300 Zug (CH). (72) Inventors; and (75) Inventors/Applicants (for US only): CARMELLO, Diego [IT/IT]; Via Montecivetta, 8, I-31021 Mogliano Veneto (IT). GARILLI, Marco [IT/IT]; Via Buozzi, 14, I-33170 Pordenone (IT). FATUTTO, Pierluigi [IT/IT]; Riviera Marco Polo, 47, I-30171 Mestre (IT). CACCIALUPI, Letizia [IT/IT]; Localita Caggiolo, 174, I-52010 Subbiano (IT). (74) Agent: VOTIER, Sidney, David; Carpmaels & Ransford, 43 Bloomsbury Square, London WC1A 2RA (GB).		(81) Designated States: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG). Published <i>With international search report.</i> <i>Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i>
(54) Title: CATALYST, PROCESS FOR ITS PREPARATION, AND ITS USE IN THE SYNTHESIS OF 1,2-DICHLOROETHANE (57) Abstract <p>A catalyst for the oxychlorination of ethylene to 1,2-dichloroethane is prepared by impregnating a γ-alumina support with a magnesium salt, drying the product, and impregnating the product with a copper salt, preferably together with a lithium salt. The catalyst preferably contains 0.1 to 5 % magnesium, 2 to 10 % copper and 0 to 5 % lithium, by weight, and is particularly effective in oxygen-based processes.</p>		

FOR THE PURPOSES OF INFORMATION ONLY

Codes used to identify States party to the PCT on the front pages of pamphlets publishing international applications under the PCT.

AL	Albania	ES	Spain	LS	Lesotho	SI	Slovenia
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EE	Estonia	LR	Liberia	SG	Singapore		

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INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference P018547W0	FOR FURTHER ACTION see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.	
International application No. PCT/IB 99/ 00065	International filing date (day/month/year) 06/01/1999	(Earliest) Priority Date (day/month/year) 08/01/1998
Applicant EVC TECHNOLOGY AG. et al.		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 2 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

- a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

- b. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international search was carried out on the basis of the sequence listing :

☐ contained in the international application in written form.

☐ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority in written form.

☐ furnished subsequently to this Authority in computer readable form.

☐ the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

☐ the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

2. ☐ **Certain claims were found unsearchable** (See Box I).

3. ☐ **Unity of invention is lacking** (see Box II).

4. With regard to the **title**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the **drawings** to be published with the abstract is Figure No.

☐ as suggested by the applicant.

☐ because the applicant failed to suggest a figure.

☐ because this figure better characterizes the invention.

☐ None of the figures.

INTERNATIONAL SEARCH REPORT

National Application No.

PCT/IB 99/00065

A. CLASSIFICATION OF SUBJECT MATTER

IPC 6 B01J23/78 B01J37/02 C07C17/156

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 6 B01J C07C

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	GB 971 996 A (THE DISTILLERS COMPANY) 7 October 1964 see claims 1-5	1-4, 7-10
X A	EP 0 176 432 A (AUSIMONT SPA) 2 April 1986 see claim 5	1-10 2-6
A	US 4 460 699 A (CONVERS RONALD J ET AL) 17 July 1984 see claim 6	1-10
A	US 4 451 683 A (DAVIES PHINEAS ET AL) 29 May 1984 see column 1, line 29 - column 2, line 36	1-6, 10
A	WO 81 01284 A (GOODRICH CO B F) 14 May 1981 see page 4, line 20 - line 32	1, 7, 10

☐

Further documents are listed in the continuation of box C.

☒

Patent family members are listed in annex.

* Special categories of cited documents :

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier document but published on or after the international filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

- "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- "&" document member of the same patent family

Date of the actual completion of the international search

22 April 1999

Date of mailing of the international search report

03/05/1999

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Authorized officer

Faria, C

INTERNATIONAL SEARCH REPORT

Information on patent family members

Patent Application No

PCT/IB 99/00065

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
GB 971996	A		BE 636856 A DE 1443708 A FR 84193 E NL 131716 C NL 297252 A	20-03-1969 17-03-1965
EP 0176432	A	02-04-1986	BR 8504512 A CA 1248934 A DE 3564911 A JP 1808116 C JP 5016904 B JP 61086951 A MX 166997 B US 4871707 A	15-07-1986 17-01-1989 20-10-1988 10-12-1993 05-03-1993 02-05-1986 22-02-1993 03-10-1989
US 4460699	A	17-07-1984	NONE	
US 4451683	A	29-05-1984	AU 548739 B AU 7926682 A BR 8200180 A CA 1187066 A EP 0057796 A FI 820105 A GR 76385 A IE 52463 B IN 157542 A JP 1592251 C JP 2014101 B JP 57136943 A TR 21784 A ZA 8200088 A	02-01-1986 22-07-1982 09-11-1982 14-05-1985 18-08-1982 16-07-1982 06-08-1984 11-11-1987 19-04-1986 14-12-1990 06-04-1990 24-08-1982 01-05-1985 24-11-1982
WO 8101284	A	14-05-1981	AR 223552 A AU 539334 B AU 6576980 A BE 885929 A BR 8008903 A CA 1151636 A EP 0039723 A IN 151951 A JP 3039740 B JP 56501440 T KR 8302154 A PT 72014 A,B US 4446249 A	31-08-1981 20-09-1984 22-05-1981 16-02-1981 25-08-1981 09-08-1983 18-11-1981 10-09-1983 14-06-1991 08-10-1981 17-10-1983 01-12-1980 01-05-1984